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The Advanced Biofuels Policy Environment: Framing the Debate and Laying the Foundation for Industry Expansion

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“From a purely American point of view, we need a president and a congress with the guts not just to invade Iraq, but also to impose a gas tax and inspire conservation. That requires a real American energy policy with long-term incentives for renewable energy—wind, solar, biofuels—rather than the welfare-for-oil-companies-and-special-interests that masqueraded as the 2005 Energy Bill...Real patriots, real advocates of spreading democracy around the world, live green. Green is the new red, white, and blue.”

-Thomas Friedman

The Energy Independence & Security Act of 2007 (Amended) Renewable Fuel Standard

Year	Conventional	Advanced	(Cellulosic)	(Biomass-diesel)	(Undiff. Advanced)	Total RFS
2008	9.0					9.0
2009	10.5	.6		.5	.1	11.5
2010	12.0	.95	.1	.65	.2	12.95
2011	12.6	1.35	.25	.8	.3	13.95
2012	13.2	2.0	.5	1	.5	15.2
2013	13.8	2.75	1.0		1.75	16.55
2014	14.4	3.75	1.75		2.0	18.15
2015	15	5.5	3.0		2.5	20.5
2016	15	7.25	4.25		3.0	22.25
2017	15	9.0	5.5		3.5	24
2018	15	11	7.0		4.0	26
2019	15	13	8.5		4.5	28
2020	15	15	10.5		4.5	30
2021	15	18	13.5		4.5	33
2022	15	21	16		5.0	36

All conventional biofuels must achieve at least 20% full lifecycle GHG reductions over gasoline.

All advanced biofuels must achieve at least 50% full lifecycle GHG reductions over petroleum fuel.

All renewable fuels must comply with land use protections contained in “renewable biomass” definition.

Policymakers Need Facts and Reasons to Act

1. Landscape is advantageous for biofuels
2. Costs of doing nothing are large
3. Biofuels policy is not complicated
4. Don't believe the press (hype)
5. Waiting is not an option

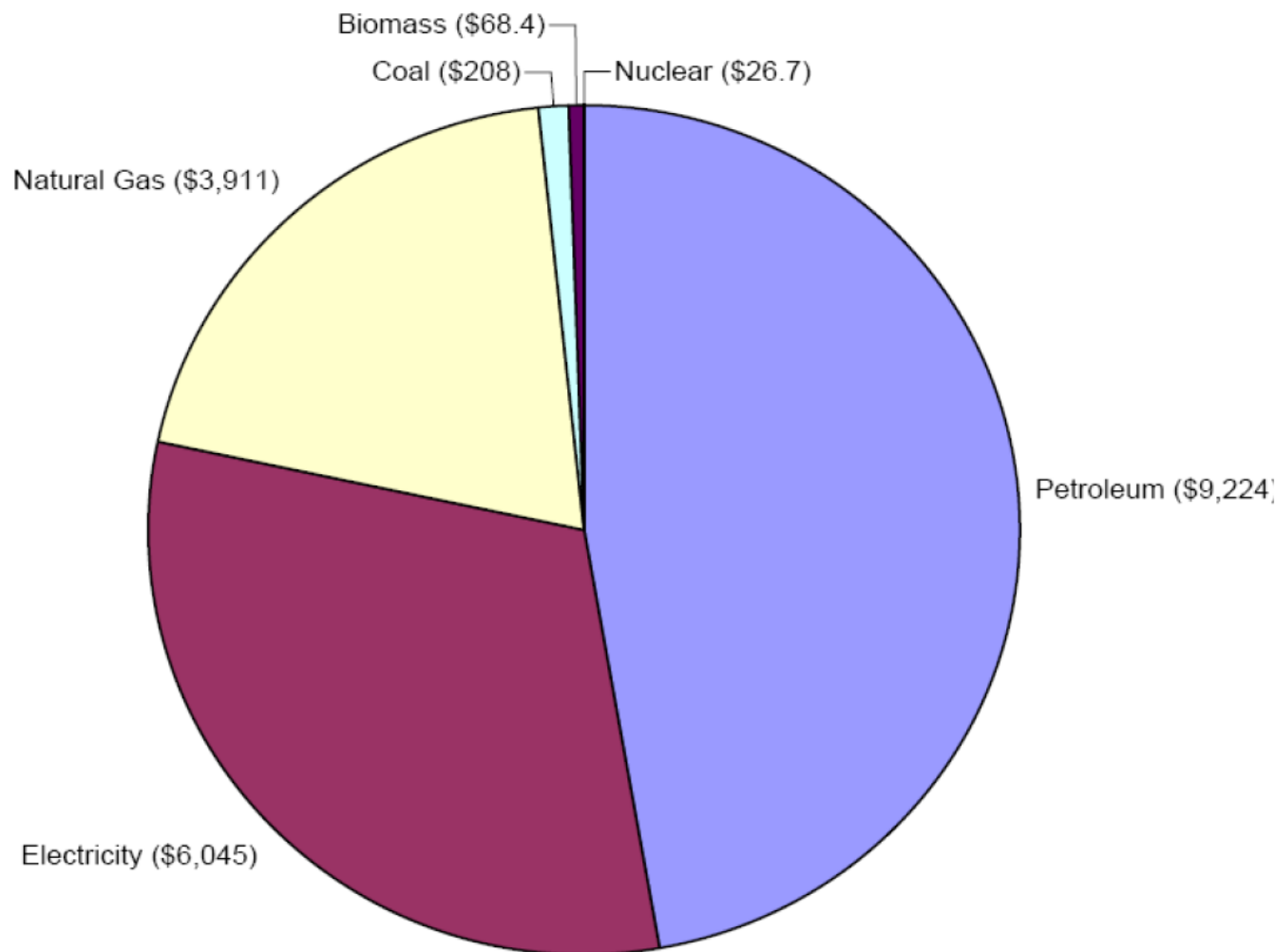
Current Landscape Presents Opportunities for Massachusetts

- MA uses A LOT of petroleum
- Advanced biofuel cluster
- Active venture capital sector
- Commitment to higher education
- Feedstock availability

Costs of Doing Nothing

- Climate change impacts could trump all else
- Oil dependence trends extremely problematic
 - U.S. trade deficit: \$710 Billion
 - Share attributable to foreign oil: \$293 Billion
 - Loss of 7.9 million jobs
 - 80 cents of oil dollar leaves state/region

Total MA Energy Spending (2004 - Million \$)



Source: DOE

Costs of Doing Nothing (continued)

- Dire national security implications
- Oil's impact on environment is getting worse
- Marginal gallon problem
- We're vulnerable because we don't produce/refine oil, and we're not connected to national pipeline system

**Hurricane Katrina Impact
Percentage Increase in Retail Prices by
Region
(Regular Grade Gasoline)**

Region	Aug 29 to Sept 5
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East Coast	22.9
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Midwest	16.5
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Gulf Coast	14.8
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Mountain	15.0
----------	------

West Coast	10.2
------------	------

United States	18.0
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Establishing Sensible Biofuels Policy is not Complicated

- 40+ states have biofuel incentives/regulations
- Biofuel sector responds to policy commitments
- Biofuels quickly impact fuel diversification with minimal infrastructural change
- EISA07 expands RFS to 36bgy alternative fuels

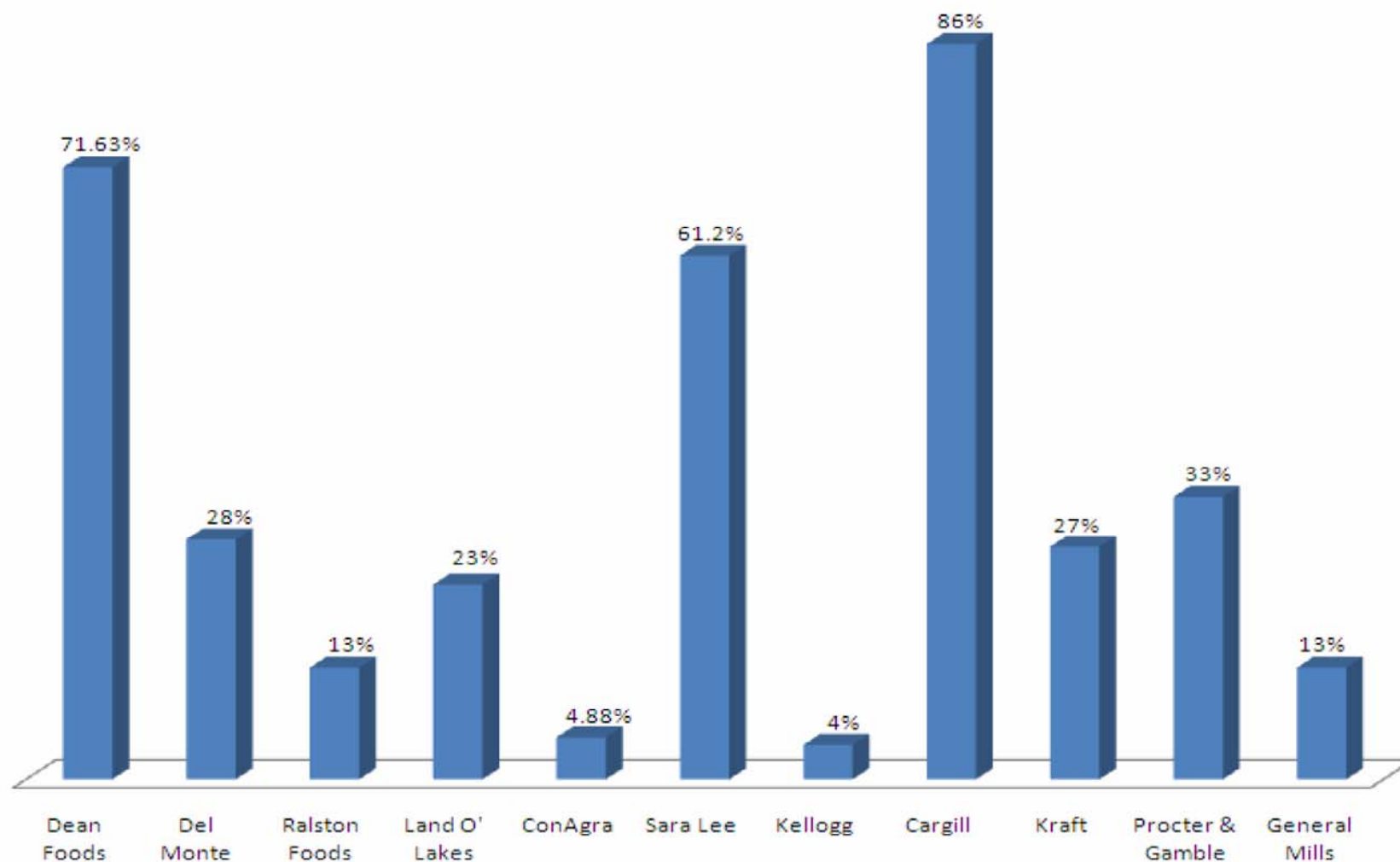
Beat Back Negative Press



Beat Back Negative Press

- Big Oil threatened by alternative fuels—win at all costs
- Policymakers can't investigate every allegation made against biofuels
- Critical that experts/industry provide balance
 - Anti-biofuels resolution in MA House withdrawn
- “You’re Entitled to Your Own Opinion,
but You’re Not Entitled to Your Own Facts”
- www.nebiofuels.org / www.foodpricetruth.org

Percent Increase in Earnings Over Last Year



Waiting is Not an Option

- Climate change increasingly urgent
- Congress may act on carbon—leadership needed
- It's the economy (stupid)
- Several other states moving forward
- Biofuels offer immediate term solutions
 - Extend fuel supplies
 - Bring down gas prices
 - Today's biofuels de-risk, support tomorrow's biofuels

The Successful Policy Environment

- States committing to biofuel development achieve fuel diversification, economic development, and pollution reduction goals
- Biomass is not limited by region
- Focus on pragmatic *and* visionary solutions to create alternative fuel markets

State Policy Landscape Today

- **Vehicles**
 - No Flex Fuel Vehicle requirements
 - Consumer side incentives
- **Fuels**
 - Several states administer renewable fuel standards
 - MA will require biodiesel, exempt cellulosic ethanol from state gas tax
 - CA Low Carbon Fuel Standard
- **Market Readiness**
 - EISA07 addresses franchise exclusivity contracts
- **Incentives**
 - Northeast should tailor to advanced fuels

State Economic Incentives Profile

Incentive Type	U.S. States w/ Incentive	Eastern States w/ Incentive	List of States
Excise Tax Exemption	20	7	AK, AR, CA, CT, HI, ID, IL, IA, KS, ME, MN, MT, NY, NC, ND, PA, RI, SD, TX, VA
Producer Credits	30	7	CA, CT, DE, FL, HI, IL, IN, KS, KY, LA, ME, MD, MI, MN, MS, MO, MT, NE, NM, NY, NC, OK, PA, SC, SD, TX, VA, WA, WI, WY
Distributor/ Wholesale Credits	9	0	AR, HI, ID, IN, IA, KY, MT, ND, WA
Retail Outlet Incentives	12	3	IL, IN, IA, KY, MN, NY, ND, OH, OK, RI, SC, WA
Infrastructure Payments	8	4	AR, CO, FL, ME, NJ, NY, NC, TE
Vehicle Rebates or Incentives	5	3	IL, KS, ME, RI, WV
Fuel Rebates	4	2	IL, MO, NJ, NY

Appendix A provides a state-by-state analysis of current state economic incentives for biofuels.

Require E10 in all Gasoline Blends

- Seamless transition—gasoline in MA contains E10
- Sets the table for emergence of cellulosic ethanol
- Provides market and investment certainty
- Assists with infrastructure and other challenges
- No cost to state, blenders, consumers

Provide Production and Other Tax Credits

- Attracts in-state production
- Average U.S. biofuel producer payment: 15-20 cents per gallon
- Low risk strategy, proven results
- Central driver for industry-wide siting decisions
- MA Biofuel Incentive Commission

Require Flex Fuel Vehicles

- Chicken-and-the-egg—significant increase in FFVs needed for E85 infrastructure investment
- Market fungibility allows fuels to compete on cost
- Financial implications low (\$35-\$100 per vehicle)
- FFV technology available today—81% of vehicles sold in Brazil are FFV
- Does not interfere with emerging technologies
- No cost to state

Implement Alternative Fuel Corridor Program

- Ensures availability of renewable fuels in highly traveled corridors
- Reaches large numbers of motorists
- State could require high volume fuel retailers to offer one alternative fuel pump
- State could provide financial assistance to retailers interested in selling alternative fuels

Support In-State R&D

- Take a page from biotech playbook—\$1 Billion Life Sciences Initiative signed by Governor in June
- Leverages significant money for additional R&D
- Increases tax revenue, with high paying jobs
- UMASS/TIMBR
- Establishes MA as the leader in Clean Fuels space

Moving Forward

- Public policy is critical—cost is only one challenge
- Fuel markets are skewed, think inside and outside the box with pragmatic *and* visionary policies
- Every gallon of biofuel connected to MA has tangible benefits
- MA/Northeast can lead cellulosic ethanol efforts